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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,265	01/30/2006	Xin Gao	46884-5453	1674
55694 7590 05/21/2008 DRINKER BIDDLE & REATH (DC) 1500 K STREET, N.W. SUITE 1100 WASHINGTON, DC 20005-1209				
EXAMINER				
GOLUB, MARCIA A				
ART UNIT		PAPER NUMBER		
2828				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/566,265

**Applicant(s)**

GAO ET AL.

**Examiner**

MARCIA A. GOLUB

**Art Unit**

2828

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) 2, 4-7, 9 and 17-53 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 8 and 10-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB06)  
Paper No(s)/Mail Date 1/30/06 6/20/07
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**  
***Election/Restrictions***

Applicant's election without traverse of Species 1 (Figs. 2-9, claims 1, 3, 8, 10-16) in the reply filed on 4/28/08 is acknowledged.

***Specification***

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1, 3 and 8** are rejected under 35 U.S.C. 102(b) as being anticipated by Stephens (5,386,426) hereinafter '426.

Fig 6 of '426 discloses a semiconductor laser device comprising:  
1,3,8. "a semiconductor laser array [38] having plural active layers [38a,b..n]said active layers extending along a first direction on a predetermined plane and arranged in parallel along a second direction perpendicular to the first direction on the predetermined plane;

a collimator lens [L1, L2] for collimating plural beams, respectively emitted from said active layers, in a third direction perpendicular to the predetermined plane; (5/50-55)

and an optical element [50'] arranged at a position where at least part of each beam emitted from said collimator lens and having a predetermined spread angle in the second direction reaches, and constituting an off-axis external resonator [the optical path of the reflected beams deviates from the optical axis of the active regions] having a resonant optical path deviated from the optical axis of each beam together with said active layers,

said optical element having, on a plane facing said collimator lens, a reflecting portion for reflecting part of each beam reaching from said collimator lens in such a manner as to be fed back to said active layers and a transmitting portion for transmitting the rest of the reaching beam.” (7/38-40, 6/47-56)

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 10-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over ‘426 as applied to claim 1 and 8 above, and further in view of Leger et al. (5,027,359) hereinafter ‘359.

‘426 discloses a semiconductor laser device as described above but does not disclose that the optical element is formed as a transparent substrate with alternating reflecting and transmitting portions.

However, Fig 3 of ‘359 discloses:

10. “wherein said reflecting portion and said transmitting portion of said optical element are arranged alternately along the second direction on a plane facing said collimator lens.”
11. “wherein said optical element comprises a tabular substrate comprised of translucent material and having a surface on which said reflecting portion and said transmitting portion are arranged alternately along the second direction.
12. “wherein said tabular substrate of said optical element is arranged in an inclined manner [the substrate is curved] with respect to a plane perpendicular to the optical axis of each beam emitted from said collimator lens and having a predetermined spread angle in the second direction so that at least part of each beam reaching said reflecting portion enters said reflecting portion perpendicularly.” (‘426 discloses arranging the

grating so that the light that is desired to be reflected back to the cavity strikes the grating perpendicularly.)

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of '359 into the device of '426 by making/combining the patterned mirror with the reflecting optical element for at least the purpose of obtaining a narrow output from the laser array.

'426 and '359 disclose a semiconductor laser device as described above, in addition '359 discloses a partially reflective film and AR coating on facets and '426 discloses a diffraction grating. However, they do not disclose:

13. "wherein said reflecting portion includes a total reflection film provided on the surface of said tabular substrate."
14. "wherein said reflecting portion includes a diffraction grating provided on the surface of said tabular substrate."
15. "wherein said reflecting portion includes an etalon provided on the surface of said tabular substrate."
16. "wherein said transmitting portion includes a reflection suppressing film provided on the surface of said tabular substrate."

However, total reflection film and anti-reflection film are well known in the art for improved reflection or transmission of light respectively. Also, etalon, diffraction grating and total reflection film are obvious variants of each other.

It would have been obvious to one of ordinary skill in the art at the time the of the invention to make the laser of these known materials/elements, since it has been held to be within the general skill of a worker in the art to select a known material/element on the basis of it's suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). In addition, the courts have held that selecting a known element to address a known problem with a predictable outcome does not present a patentable difference over the prior art.

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***Contact Info***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARCIA A. GOLUB whose telephone number is (571)272-8602. The examiner can normally be reached on M-F 9-6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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